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Re: MM6023; App. Ser. No. 10/593,187

Agenda for Interview.

Thank you and all the best.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE MATTER OF:	Frederique Cordelle, et al.
SERIAL NO:	10/593,187
FILED:	September 18, 2006
TITLE:	Solid Oxide Fuel Cell With Sealed Structure
GROUP:	1795
CONFIRMATION NO:	7286
EXAMINER:	Sean P. Cullen

REVISED

AGENDA FOR INTERVIEW

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

SIR:

An interview for Friday December 23, 2011 at 10:00 AM has been agreed upon in the above captioned case.

The interview was requested to discuss the Final Rejection which Applicant believes is based on a misinterpretation of the claims particularly as it relates to the compact zones which represent critical limitations of the claims. Each compact zone

also comprises a protuberance of the electrolyte layer which extends from the electrolyte layer into the electrode layer to create the gas tight seal internally within the cell. The Examiner has apparently given an interpretation to the above limitations regarding the compact zones and the protuberance of the electrolyte in claim 1 which is believed to be incorrect and inconsistent with the invention.

Accordingly, applicant has attached a proposed revision to claims 1 and 3 to make it clear that the compact zone is an integral part of each electrode layer with, for example, the first compact zone of the first electrode layer having a third porosity which is lower than the porosity of the first electrode in which the first compact zone resides. Moreover the first compact zone is located substantially adjacent to or around the gas inlet dedicated to the second electrode layer for enabling gas transfer through the first electrode layer. The compact zone comprises a protuberance of the electrolyte layer which extends into said the electrode layer to form a seal internal of said cell. The protuberance may, in fact, form the entire compact zone in the electrode layer. The references Ruhl and Itoh are completely remote from this teaching as now worded.

The electrolyte layers in Ruhl are discs having plane surfaces..Nothing in Ruhl permits the interpretation of the electrolyte discs representing layers forming protuberances which extend into the electrode layers to function as part of or to form the entire compact zones within the electrode layers. Furthermore, there is nothing in Ruhl which provides or suggests that the electrode layers have compact zones of

a porosity different from the rest of the electrode and no teaching that the compact zones are substantially adjacent to or around the gas inlet dedicated to the opposite electrode layer in which the compact zone resides.

More importantly, Ruhl teaches and requires the use of external gaskets 7, 8 which are distinct elements separate from the electrolyte layer to form a seal. The Examiner has elected to identify these external gaskets 7 and 8 of Ruhl as being the "compact zones" of the subject claims. However, no such teaching exists in Ruhl to support such an interpretation or to support the interpretation of the Examiner regarding protuberances of the electrolyte layer 6. The Examiner refers to reference numerals in Ruhl and to the drawings. However, the teaching in the description of Ruhl does not even remotely permit such an interpretation. It amounts to pure fantasy to make an interpretation from a drawing where none whatsoever exists in the description of the reference to support such an allegation. Applicant is challenging the allegations of the Examiner regarding the teaching of the reference as being totally unsupported by the underlying reference and is not attacking the teaching of the references.

The same is true for the Itoh reference. The concept taught by Itoh is not what the Examiner attributes to it. Itoh does not teach or suggest the concept that "seals of gas inlets can be formed from protuberances of the electrolyte layer" as purported by the Examiner. More importantly, prior art is based on what is actually taught in a cited reference and not on an interpretation by the Examiner not explicitely or

inherently taught in the description of the reference. Applicant cannot find any teaching of the concept alluded to by the Examiner in Itoh. To the contrary, Itho on page 4 paragraph [0044] to paragraph [0047] explicitely teaches providing a ceramic separator film 5 between the cells and teaches a corner film portion 8(b) formed at least in part from the separator film 5 to cover the edge portions of the side surfaces. As set forth in paragraph [0048] "since the separator film 5 functions as the gas seal film in the entire area having the film formed thereon, the porous fuel electrode substrate 2 enables inflow/outflow of the gas only at the gas inflow/outflow opening 18 etc". No teaching or suggestion in Itho exists to support the allegation of the Examiner that the corner film portions 8(b) is a protruberance of the electrolyte layer. Apparently, the Examiner is ignoring the description in the reference and is instead relying on an interpretation from the drawing (figure 2 of Itoh) which applicant considers to be without merit. Paragraph [0019] of Itho is dependent on the description in page 4 which requires the separator film 5 to form the corner film portion 8b. Moreover, the protruberance in the subject claims must extend into the electrode layer. The corner film portions 8b do not extend into electrode layers in Itho much less to form compact zones.

Applicant has however modified the wording of claim 1 so that the drawings from the references Ruhl and/or Itho cannot alone be interpreted to correspond to the claim limitations as done in the current rejection. Applicant would like the Examiner to consider the proposed claim revisions for overcoming the rejections and

for placing the application in condition for allowance.

For all of the above reasons, applicant now believes the claims remaining in the application based on the proposed amendments are in condition for allowance.

Respectfully submitted,

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Proposed Claim Revisions

1. (currently amended) An individual cell for a fuel cell comprising: a first electrode layer comprising a first porosity; a second electrode layer comprising a second porosity; ~~and second electrode layers;~~ gas inlets dedicated to each of said electrode layers respectively with each gas inlet defining passages within the cell in direct contact with the electrode layer to which each gas inlet is dedicated for enabling gas transfer through the electrode layers ~~with said electrode layers having first and a second porosities~~; and a solid electrolyte layer located between said first and second electrode layers; wherein the first electrode layer further comprises a first compact zone having a third porosity with the third porosity being ~~with each of the two electrode layers comprising an anode and a cathode and with at least one of the two electrode layers having at least a first compact zone with a third porosity which is~~ lower than ~~the~~ said first porosity ~~of the electrode layer in which the first~~ and being located substantially adjacent to or around the gas inlet dedicated to the second electrode layer for enabling gas to transfer through the first electrode layer and with the first compact zone comprising ~~compact zone is located, wherein the compact zone is~~ a protuberance of the electrolyte layer which extends from the electrolyte layer into said first electrode layer to form a seal internal of said cell for ~~forming an area of low porosity disposed adjacent the gas inlet dedicated to the other electrode layer and wherein said protuberance forms an internal seal~~ creating a self-tight fuel cell architecture .

2. (previously presented) An individual cell for a fuel cell according to claim 1 wherein the first electrode layer has a first thickness and said first compact zone has a thickness identical to the first thickness.

3. (currently amended) An individual cell for a fuel cell according to claim 1 wherein the second electrode layer comprises at least a second compact zone with a fourth porosity~~, the fourth porosity being~~ lower than the second porosity <u>of the second electrode layer and being located substantially adjacent to or around the gas inlet dedicated to the first electrode layer for enabling gas transfer through the second electrode layer and wherein the second compact zone comprises a protuberance of the electrolyte layer extending into said second electrode layer to form a seal internal of said cell for creating a self-tight fuel cell architecture</u>.

4. (previously presented) An individual cell for a fuel cell according to claim 3 wherein the second electrode layer has a second thickness, and a second compact zone has a thickness identical to the second thickness.

5 - 6. (cancelled).

7. (currently amended) An individual cell for a fuel cell according to claim 1 also comprising at least one bipolar plate adjacent to the <u>first or second</u> ~~an~~ electrode layer.

8. (previously presented) An individual cell for a fuel cell according to claim 7 comprising two bipolar plates adjacent to each electrode layer.

9. (previously presented) An individual cell for a fuel cell according to claim 7 wherein the bipolar plate has a coefficient of thermal expansion higher than the coefficient of thermal expansion of the adjacent electrode layer and the electrolyte layer.

10. (previously presented) An individual cell for a fuel cell according to claim 9 wherein the bipolar plate is connected to the adjacent electrode layer by nesting.

11. (previously presented) An individual cell for a fuel cell according to claim 10 wherein the bipolar plate comprises at least a protuberance and the adjacent layer comprises a cavity, said protuberance of the bipolar plate and the cavity fitting one into the other.

12. (previously presented) An individual cell for a fuel cell according to claim 11 wherein the cavity is located in a compact zone of the electrode layer.

13. (previously presented) An individual cell for a fuel cell according to claim 12 wherein the cavity is located in a protuberance of the electrolyte layer.

14. (previously presented) An individual cell for a fuel cell according to claim 11 wherein the cavity is larger in width and/or in depth than the width and/or height of the protuberance of the bipolar plate.

15. (previously presented) An individual cell for a fuel cell according to claim 11 comprising a plurality of cavities.

16. (cancelled).

17. (currently amended) An individual cell for a fuel cell according to claim 16, with the fuel cell having a stack of cells in which each cell is ~~being~~ separated from its neighbor by a bipolar plate.

18. (currently amended) An individual cell for a ~~A~~ fuel cell according to claim 17 having ~~with~~ a circular plane geometry.

19. (previously presented) An individual cell for a fuel cell comprising an anode layer, a cathode layer, a solid electrolyte layer located between the anode layer and the cathode layer, and having separate gas inlets dedicated to each of said electrode layers respectively with each gas inlet defining passages within the cell in direct contact with the electrode layer to which each gas inlet is dedicated for enabling gas transfer through the electrode layers, a bipolar plate adjacent to each of the anode and cathode layer having at least one protuberance extending therefrom with each of the anode and cathode layer comprising a dense zone having a thickness equal to the thickness of the corresponding anode and cathode layer, the porosity of the dense zone being larger than the porosity of the corresponding anode and cathode layer, the dense zone comprising a cavity in which the corresponding protuberance of the adjacent bipolar plate can fit.

20. (currently amended) An individual cell according to claim 19 wherein the ~~comprising~~ gas inlets for one of the anode and cathode located in dense zones of the other anode and cathode.

21. (cancelled).